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Justifying Health IT Investments: A Process Model of Framing Practices and Reputational Value

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Highlights

- We develop a performative framing framework to unpack how temporally oriented practices are consequential in performing different health IT value possibilities.
- We study how practitioners at two hospital organizations facing different reputational circumstances justified HIT reputational value.
- We highlight how reputational value is performed in different ways, through the ongoing process of justifying HIT investments.
- We contribute a process model of how value justifications are enacted through temporally oriented framing practices informed by the past, but also oriented toward the future and the present.

Abstract

Despite important research contributions on the financial and operational dimensions of information technology (IT) value, justifying health IT (HIT) investments remains a difficult and enduring issue for IT managers. Recent work has expanded our understanding of HIT value, by focusing on the initial resource allocation stage, and through conceptualizations of value across multiple dimensions. Building on these developments, we adopt a performative perspective to examine the research question of how practitioners justify early stage HIT investments, with a focus on reputational value. We explored this question through a comparative field study of two hospital organizations in the English National Health Service (NHS). We found that practitioners' temporally orientated framing practices matter in justifying HIT investments, enacting different possibilities for reputational value. We develop a process model to explain these dynamics and highlight the mutability of reputational value, which can lead to different possibilities for restoring, enhancing, or maintaining reputation. We conclude by discussing the implications for justifying HIT investments.

Keywords: IT business value; IT investments, Health IT; health care; value; case study; reputation; framing practices; performativity

1. Introduction

For more than two decades, information technology (IT) value research has made important contributions to a fundamental topic in our field, namely how organizations justify and create value from IT investments (Agarwal & Lucas, 2005; Kohli & Grover, 2008). The dominant and enduring stream of literature in this domain has focused primarily on justifying value through a one-off and largely static outcome, by explicating and measuring operational and financial value dimensions of IT (Melville, Kraemer, & Gurbaxani, 2004). Further, the approach taken has been predominantly to assess the value of IT investments post hoc - in other words, *after* the investments have been made. In healthcare this is problematic as practitioners have historically faced great pressures in justifying health IT (HIT) investments, where institutional pressures are at work. For example, research in the UK's National Health Service (NHS) has highlighted institutional pressures associated with the introduction of a national program for IT between 2002 and 2012 in the UK's NHS (Currie 2012; Currie & Guah, 2007; Mark, 2007). While there are indications that HIT investments pay off (Ayabakan, Bardhan & Zheng, 2017; Lin, Chen, Brown, Li, & Yang, 2017) this is neither certain (Davidson & Chiasson, 2005) nor short-term (Schryen, 2013), thus making HIT investments hard to justify and to appropriately assess.

Recent work has emphasized the need to expand our understanding of the HIT investment process by focusing on the initial resource allocation stage (Salge, Kohli, & Barrett, 2015) and by exploring and the multidimensional nature of IT value (Barrett, Oborn, & Orlikowski, 2016; Tempini, 2017) as an important complement to the dominant view of value. In particular, relating economic and operational notions of value to other dimensions has formed a stronger basis for understanding the importance of value as a concept (Stark, 2009). We know, for example, that HIT investments can provide multiple forms of value for different stakeholders, such as reputational, epistemic and platform value among others (Barrett et al., 2016) and that these develop in a nonlinear and contingent trajectory (Tempini, 2017). Yet, while these studies have provided important contributions, by examining how HIT investments provide opportunities for value creation along multiple dimensions, our understanding of how investments are justified in practice during the allocation stage is largely an incomplete task. The purpose of this paper is therefore to respond to a call for a broader HIT research agenda that moves beyond examining operational and financial performance post-hoc, towards exploring how HIT investments can enhance social goals, such as reputation – an intangible asset reflecting multidimensional evaluations held among stakeholders (Ravasi, Rindova, Etter & Cornelissen, 2018), at the allocation stage (Salge et al., 2015). Healthcare practitioners are justifying HIT investments for reputational value that arises from the general social approval of various stakeholder groups (Rindova, Williamson, Petkova, & Sever, 2005), which in turn can influence operating autonomy, access to financial resources, and help in securing future patient referrals (Scott et al., 2000). For these reasons, we shift to a proactive approach to examine how healthcare practitioners are framing and evaluating HIT investments with a broader social focus on reputational value. We therefore examine the research question *how do practitioners justify HIT investments, and how are these justifications consequential for enacting reputational value?*

To address our research question, we present findings of two case studies at hospital organizations facing different reputational circumstances. The first hospital provided the opportunity of studying how practitioners were restoring reputation with HIT, following a regulatory inspection failure. In contrast, the second hospital enjoys a leading reputation both nationally and internationally for high quality patient care, which practitioners were aiming to reproduce and enhance going forward. Our paper makes two key contributions. First, we develop a process model that unpacks how practitioners justify HIT investments through framing practices. Responding to Davidson's (2006) call, we develop a performative

perspective on framing practices, by which justification of HIT investments is accomplished. We find that temporally oriented framing practices in terms of time horizon (short or long term) and value seeking approach (reactive or proactive), enact different possibilities for reputational value. We conceptualize framing practices as performative in that they involve both the creation and emergence of different aspects of value, informed by the past, but also oriented toward the future and the present. Second, we highlight how the justifying of HIT investments is an ongoing process which enacts reputational value that is nevertheless mutable over time, with implications for how reputation is restored, enhanced, or maintained. In the following section, we review different perspectives on justifying IT investments, such as the initial IT allocation stage, and motivate our theoretical and empirical focus on reputational value. This is followed by our theoretical basis which develops a performative HIT value perspective.

2. Perspectives on justifying HIT investments

2.1. Examining the initial IT allocation stage

There is considerable literature in general IT and HIT (Grover & Kohli, 2012; Kohli & Devaraj, 2003; Melville et al., 2004) that focuses on the importance of examining the process of investing in IT. Scholars have examined, for example, IT adoption (Agarwal et al., 2010; Jha et al., 2009), IT usage (Devaraj & Kohli, 2003; Melville et al., 2004), and IT value appropriation (Davidson & Chismar, 2007; Oborn, Barrett, & Davidson, 2011), thereby justifying the value of IT investments. However, studies in this research stream tend to treat IT investments as “given”, unitary and unchanging, with the primary emphasis placed on evaluating the consequences of IT investments. Recent work by Salge et al., (2015) has expanded the process spectrum of IT investment research to encompass the initial allocation stage, during which senior managers decide how and how much of the organization’s scarce financial resources may be allocated to the IT function, in the face of competing priorities (Xue, Liang, & Boulton, 2008). Their study reveals that intended performance improvements are only just one of several reasons why hospitals invest in HIT. They conclude by calling for a broader HIT research agenda that moves beyond examining clinical and economic performance as important dimensions, towards exploring how HIT investments can enhance social goals such as reputation (Bitektine, 2011).

Reputation has been defined as an impression widely received, which represents public cumulative judgments over time (Fombrun, 1996; Hall, 1992; Rao, 1994). Organizational reputation is an important form of social approval and a critical intangible resource of competitive advantage that can facilitate access to customers, employees, suppliers, or finance (Deephhouse, 2000; Fombrun & Shanley, 1990; Lange, Lee, & Dai, 2011; Ravasi et al., 2018). Multiple studies show the importance of reputation for organizations as a valuable strategic resource, leading to positive economic outcomes such as financial performance (Roberts & Dowling, 2002) and the ability to charge premium prices (Fombrun & Shanley, 1990; Rindova et al., 2015). Reputation is critically important for organizations in general (Podolny, 2005) and hospitals in particular (Scott et al., 2000). For example, hospitals today operate in a highly regulated field (Agarwal, Gao, DesRoches & Jha, 2010; Scott, Ruef, Mendel, & Caronna, 2000) and rely on the endorsement of multiple external stakeholders, including the Department of Health, regulatory bodies such as the Care Quality Commission, patient advocate groups and the media to operate. All these stakeholders are constantly assessing hospitals and HIT enabled care in the form of patient feedback, national audits, quality inspections and news stories, respectively (Ruef & Scott, 1998). Therefore, reputation is essential for hospitals in our digital era. Overall, the IT resource allocation decisions and their underpinning justifications are a crucial and emerging area of research for holistically understanding the value of HIT across a wide range of economic and social goals, especially reputation.

2.2. Realizing multiple value dimensions

The broadening of the HIT value literature aligns with key themes in the emerging stream of information systems research that examines multiple dimensions of value. For example, Barrett, Oborn, & Orlikowski (2016) examine multiple forms of value being enacted in an online healthcare

community. Drawing from the sociology of worth literature (Boltanski & Thévenot, 2006; Stark, 2009), they conceptualize valuation processes as shaped by encompassing regimes of worth that enact multiple kinds of value such as financial, epistemic, ethical, service and reputational value. Similarly, Tempini (2017) builds on and develops a multidimensional value framework to examine business value, scientific value, community value and individual value, all of which had different informational value depending on situated use.

By taking these insights into account, we are interested in elaborating theory as to how practitioners justify and enact multiple dimensions of reputational value. Reputational research shows that IT can provide other value, such as organizational survival and social fitness (Lim, Stratopoulos, & Wirjanto, 2013). For instance, Wang (2010) found that following IT fashions – “the transitory collective belief that an IT is new, efficient, and at the forefront of practice” (p.64), can improve organizational reputation, even in the absence of performance improvement. Although these studies have crucially expanded our understanding of value that IT investments can provide, they largely view value as a one-off, static outcome. That is, reputational value is conceptualized as either the intrinsic property of IT, or the preferences of the evaluative audiences. This is problematic because reputation is a multi-dimensional concept (Boutinot, Ansari, Belkhouja, & Mangematin, 2015; Lange et al., 2011) and multiple reputational assessments may change over time. In this paper we unpack how senior healthcare practitioners allocate various possible forms of reputational value into their HIT investment justifications. We do so by considering how the various stakeholders are framing HIT investments.

3. Theoretical framework: Towards a performative perspective of framing HIT investments

We devise a theoretical framework that conceptualizes HIT value as performed through framing practices. As such, in examining how HIT investments are justified, we pay attention to the way in which justifications are accomplished, and how HIT value is constituted through framing practices. We identify the practices that are constitutive of, and implicated in, performing shared understandings of justifying HIT investments. In so doing, we conceptualize the phenomenon of value as fluid and enacted in the doings of organizational actors (Feldman & Orlikowski, 2011).

The performativity turn is comprised of a diverse body of foundational approaches and generative theories for studying diverse phenomena across disciplines. The performative turn is unified in arguing that realities (including objects/subjects) and representations of these realities are being enacted or performed simultaneously. In other words, and to paraphrase Strum & Latour (1987), phenomena (in our case reputational value) are continuously constructed through the heterogeneous efforts to define them in practice.

3.1. Framing HIT Value

Organizational members’ frames “concern the assumptions, expectations, and knowledge they use to understand technology in organizations” (Orlikowski & Gash, 1994, p. 178). More broadly, scholarship on framing (Barrett, Heracleous, & Walsham, 2013) has identified several aspects of framing practices that are important, based on the literature on social movements (Benford & Snow, 2000) and computerization movements (Iacono & Kling, 2001; Kling & Iacono, 1995). These and other studies have highlighted the importance of a processual view of technological *framing*. For instance, Davidson (2002) developed business value of IT frame domains which were concerned with members’ understanding of how IT could be used to alter business processes and relationships. By doing so, Davidson contributed by providing a process model that draws attention to the dynamics and possible consequences of frame shifts.

Our perspective uses framing practices, which concern the material and discursive manner by which justifications are accomplished, with an orientation of accounting for how justification is done in practice. This implies framing practices are routinely made and remade in practice and are consequential to shared understandings of reputational value. The concept of performative framing is related to Davidson’s (2006) call to IT researchers to focus on the dynamic aspects of the framing process. That is, framing practices are performative in that they involve both the creation and emergence of different aspects of value. In our case this helps us unpack the multiplicity of how

reputational value can be enacted, rather than assuming a priori value singularity. For instance, ongoing framing practices may make evident the diverse aspects of reputational value.

3.2. Temporally Performing HIT Justifications

Further, our performative perspective allows us to take seriously the role of temporality (Emirbayer & Mische, 1998; Langley, Smallman, Tsoukas & Van de Ven, 2013; Reinecke & Ansari, 2017) in the process of justifying HIT investments. As Emirbayer & Mische argue (1998), agency is a temporally embedded process informed by the past, but also oriented toward the future and toward the present. In other words, acting in the present is extended and overlapping with our ability to imaginatively construct a sense of the past and the future. Following these process insights (Langley & Tsoukas, 2017), our framework examines how temporal orientations – the interpretations and invocations of time horizons (short or long term) and value seeking approaches (reactive or proactive) – influence how reputational value is framed in the process of justifying HIT investments. Specifically, we link the reactive value seeking approach to the short-term time horizon, which tends to be focused more towards the past and the present. On the other hand, a proactive value seeking approach tends to be focused on the future and the present. However, these are not universal truths and do not preclude the potential for a temporal orientation having a broader focus at particular times and situations.

As illustrated by Kaplan & Orlikowski (2012), people are engaging in multiple interpretations that help constitute projections into the future, such as the short term or long term, and we draw on this to suggest how these might link to reputation. In other words, we pay attention to how healthcare practitioners are justifying HIT investments and what difference the time horizon and value seeking approach have in framing reputational value. Finally, and relatedly, we conceptualize reputational value as not a one-off outcome; rather, value dimensions are viewed to be mutable over time.

In summary, we develop a performative understanding of the framing practices used to justify HIT reputational value, in that we theorize how temporal orientations grounded in value seeking approaches (reactive or proactive) and time horizons (short or long term) were continually performing multiple aspects of HIT reputational value.

4. Methods and data sources

We followed an inductive research design and adopted an interpretive approach (Golden-Biddle & Locke, 2007; Walsham, 1993), starting from an interest in how organizational participants engaged in framing practices when justifying HIT reputational value. Informed by a process approach (Langley, 1999), we collected data at two different hospitals, which are both members of a common health group we call Alpha Health Partners (AHP).

4.1. Research context

Our two cases offer different dynamics in relation to our research question, which provided fertile ground for examining framing practices for justifying HIT investments. AHP1 provides mental health and specialist community services to more than 755,000 people across the country. With annual income of more than £150 million, AHP1 employ 2,500 people across 75 sites. They service children, adolescents, adults, older people, as well as provide specialist forensic and learning disability services. AHP1 provided the opportunity of studying how the hospital organization was restoring reputation with HIT, following a regulatory inspection failure. During their usual hospital regulatory audit, the regulators issued a warning which placed the hospital under pressure to restore and repair their reputation. In contrast, AHP2 enjoys a leading reputation both nationally and internationally for its services and for high quality patient care. AHP2 is a specialist hospital that provides care to approximately 3 million people. During the time of our study, AHP2 was justifying HIT investments as part of major move to a new hospital site, to replace their outdated building and infrastructure, which was constricting their ability to grow and develop the way they envisioned. A major part of this move was a business transformation program they called eHospital, which is a combination of IT infrastructure, handheld devices and a fully integrated electronic medical record system (EMR), defined as the digital repository of patient data that is shareable across stakeholders (Angst et al., 2010).

4.2. Data collection

We collected data from a variety of sources over a period of 3 years, including site visits, observations during meetings, formal interviews, informal discussions, and publicly available documents. First, we engaged with AHP1 before, during and after their regulatory inspection by the care quality commission (CQC). We conducted 14 semi-structured interviews to better understand a) the situation they were facing, b) the future requirements of mental health, as part of their digital strategy, and c) how they were justifying HIT investments and implementing these investments in practice. The interviews were conducted on-site in 2014, with participants from a diverse range of backgrounds, different hierarchical levels and service provisions (chief executive officer, chief nursing officer, chief pharmacist, nursing, medical and finance directors, nursing manager, patient lead, nurse matron, deputy finance executive, clinical psychologist, consultant psychiatrist, psychology lecturer, audit and governance manager). Subsequently, we had the opportunity to engage with the technology director at AHP2, who was keen to collaborate with us. Similar to AHP1, we conducted 13 semi-structured interviews on-site between 2015 and 2016, with participants from a diverse range of backgrounds (operations and service improvement directors, senior level managers of communications, change, IT and radiology, transplant consultant, consultant cardiologist, consultant physician, consultant anesthetic, transplant matron, clinical lead for eHospital, and a nurse lead - eHospital coordinator). Across both cases, our interviews provided multiple understandings and accounts of the framing practices used and allowed us to examine not only how management were framing HIT investments, but also how HIT was implemented by staff on the ground. The interviews varied in length, ranging from 35 to 120 minutes. All interviews were digitally recorded and subsequently professionally transcribed, verbatim.

Our interview questions focused on understanding the practices through which our organizational participants were justifying HIT investments and how they were implemented, given their circumstances in the context of their work. For example, we asked how they were using different types of HIT to complete their work, how they envisioned HIT would provide value in the work setting. In addition, we collected and analyzed secondary data sources. These included informal chats, internal documents (e.g. operational, strategy and annual reports, presentations, newsletters, images,) as well as archival and documentary data (e.g. healthcare commissioning guidelines, regulator reports including hospital performance intelligence monitoring guidelines, and hospital rankings), leading to a database of 85 documents.

4.3. Data analysis

Our analysis followed the general procedures of process analysis (Langley, 1999) to expand our understanding of how healthcare practitioners were justifying HIT investments. Throughout all the different stages of analysis, we used Atlas.ti, a qualitative data analysis software package, to create an integrated database. This facilitated the generation of rich memos and open codes across the two cases, as well as the development and tracking of coding categories.

The first cycle of analysis involved a narrative strategy, where we constructed a detailed narrative for each case based on our interview transcripts, hospital annual and regulator reports and internal documents (Langley, 1999). Subsequently, we performed open coding (Charmaz, 2014) to unpack the framing practices used in justifying HIT investments. To do so, we engaged in within-case analysis to become familiar with each case, enabling us to write further detailed narratives for each case, based on extensive theoretical memos on our emerging findings. To keep track of the unfolding analysis, we compiled an event-history database in Atlas.ti throughout the fieldwork. This enabled the unique patterns of each case to emerge in terms of temporal framing practices, before we attempted to apply insights across the cases, facilitating familiarity and accelerating the cross-case comparison. It is important to note that the importance of framing practices emerged as a key theme in justifying HIT investments across both our cases, and this reinforces the significance of our research design in studying both cases.

In a second cycle of analysis, we identified how these framing practices, within and across our cases, were performing shared understandings of HIT value, with a focus on our inductive data

around reputational value. In this round of analysis, we iterated among the in-depth analysis of each case, comparing across cases, and connections to the literature (Barrett et al., 2016; Kornberger, 2017; Tempini, 2017), which drew our attention to other salient issues emerging from the data that were unexplored. For example, while we connected the framing practices to HIT reputational value, we also realized the importance of different temporal orientations found within each case, in terms of the time horizon.

Having recognized this opportunity, and during a third round of analysis, we examined the temporal orientation of each of the practices we identified in round two, following our theoretical framework. While our sensitivity around time horizon was theoretically driven, the analysis of the framing practices in terms of reactive or proactive value seeking approach was grounded in our data. In this round of analysis, we traced and explained the performative dynamics of how temporal orientations mattered when enacting framing practices in the ongoing justifying of HIT investments. This allowed us to categorize the framing practices practitioners used at AHP1 and AHP2 as helping to overcome issues of the past, resolving present issues, whilst being oriented towards the future. For example, the aggregate dimension of “overcoming the past” refers to the practices anchored in solving past problems, “present issues” provides the tactical practices anchored in short-term horizons, and finally, we categorized strategic practices anchored in long-term horizons under the dimension of “towards the future”. Figure 1 shows how we categorize the practices under the temporal aggregate dimensions and according to short/long term horizon as well as reactive/proactive value seeking approach.

-----Insert Figure 1-----

Additionally, we paid attention to how framing practices were invoking multiple value aspects and stakeholders, such as convincing regulators during inspections, improving relations with commissioners, hospital staff, general practitioners (GPs), patients and other referring hospitals. This allowed us to develop a performative understanding (MacKenzie & Millo, 2003) of how practitioners were using framing practices in the process of justifying HIT reputational value at AHP1 and AHP2. We theorize how temporally oriented framing practices informed by the past but also oriented toward the present and future issues were justifying multiple HIT reputational value aspects, invoking different stakeholder groups.

5. Findings and Analysis

We present our findings for each case separately. We begin by describing the circumstances facing each of our hospital organizations, which are consequential for the temporally oriented framing practices performed by the senior managers and practitioners. We then show how framing practices at AHP1 and AHP2 were used in performing different justifications of HIT reputational value. Finally, drawing on these empirical findings across our cases, we conclude our empirical analysis by synthesizing our findings in a general process model of framing practices and reputational value in justifying HIT investments in healthcare.

5.1. AHP1: Restoring reputation through HIT

To understand how practitioners at AHP1 enacted their temporally oriented framing practices for reputational value, it is necessary to examine the pressures they faced and their ensuing temporal orientation. In 2011, the care quality commission (CQC)– the independent regulator of health and social care in England, found AHP1 to be failing to meet the five essential standards during its annual compliance review process. CQC inspects hospitals to establish whether their services are safe, effective, well led, responsive to people’s needs, as well as whether staff is caring. By exercising its legal right, the regulator demanded action from AHP1 to conform to effective care quality and patient safety standards. Following the specification of this major organizational failing, AHP1 practitioners were justifying HIT investments using both short-term and long-term time horizons, as well as reactive and proactive value seeking approaches, to quickly implement HIT that would help them restore their reputation, but also help them proactively appeal to different

stakeholder groups, respectively. Figure 2 summarizes our empirical findings and structures our analysis, while table 1 provides additional evidence for the time horizon and value seeking approach of the temporally oriented framing practices.

-----Insert Figure 2-----

-----Insert Table 1 -----

5.1.1. Overcoming the past: Crafting urgency for restoring reputation with HIT

The failure to meet the regulatory compliance standards by CQC, led AHP1 senior managers and directors to justify HIT investments as urgently needed for collecting, storing, and visualizing data to CQC in an accessible manner. Their aim was to improve the quality, safety and effectiveness at the point of care delivery. A nurse matron responsible for implementing this HIT reflected on this process:

“There was just this mad rush for everything, everything you know to do with IT, where we can make these dashboards, make everything very visual so it is at a glance, everything was red, green or amber, nobody wanted to attract a red. Red was like blood, animal pack attack. You know not a pretty picture”.

Furthermore, AHP1 executives framed HIT investments as helping the hospital devise an internal quality assurance framework, that would allow clinical teams to self-assess against CQC measures of compliance, at the point of delivery. The aim of this strategy was to restore their reputation in the CQC rankings. Each clinical team was required to maintain a portfolio of evidence provided by HIT dashboards, which would support CQC compliance measurements. With this framing practice, the practitioners argued HIT would help them rigorously test and review local evidence of how each compliance measure was being assessed. By identifying the problem as needing immediate evidence of CQC compliance, while reflecting on a reactive temporal orientation, their framing practice introduced a sense of urgency for restoring reputation with HIT.

5.1.2. Present issues: Investing in HIT to display professional information handling processes

AHP1 practitioners also sought to legitimize the use of EMR information as beneficial in quantifying the metrics CQC is seeking during their inspection process. As such, HIT was framed as helping them restore their reputation by articulating solutions and action plans. For instance, the director of finance highlighted the importance of storing and presenting EMR patient information for enhancing regulatory compliance, by giving the impression that they are “more professional than just rooting around for the odd note”:

“CQC like to come and visit, review and you log onto the [EMR] system and see how information is stored and kept, it is important that whatever system we use complies with the appropriate governance, that we store all the information we need on the system, so when they turn up it is all very clear and they are not having to go to this drawer for that piece of information... the benefit of the EMR, then, is that they can come in, log onto a patient’s record and see patients’ physical health, their daily actions, their drugs, they can just see it on one screen... the EMR helps us prove that quicker and we are more professional than just rooting around for the odd note”.

Although EMR information was crucial, AHP1 were also framing mobile applications as important in helping them convince CQC of their compliance, by enabling the monthly tracking and evaluation of compliance targets through real time digital scores:

“There is a range of CQC compliance standards that we have to comply... we have created an iPad assessment tool that all of our teams have to complete monthly and every question then is allocated to an outcome, a CQC standard”.

In addition, AHP1 practitioners were invoking other stakeholder groups in their justifications of HIT investments. For instance, they framed the use of EMR information as helping them convince commissioners of increased health care service activity levels, gain access to further funding and improve their overall negotiating position with them. In this way, the use of EMR information was framed as providing reputational value through the power of commanding resources, such as

funding with commissioners. As reflected in the quote below by the CEO of AHP1, EMR information was framed as being a “weapon in the armory” for contract negotiation with commissioners:

“It is not just commissioning in terms of the financial elements [...], it is also about the information as a weapon in our armory around contract negotiation. This is an important element of what we would use an information system for”.

The CEO of the organization framed EMR use as affording information that could provide a better negotiating position with commissioner groups. HIT was crucial for AHP1, especially in the context of mental healthcare, as hospitals receive funding under block contracting. In this contract type, commissioners pay mental health service providers an annual fee in instalments, in return for providing a defined range of services over a fixed period. However, AHP1 had been spending more money than provided by the fixed contract amount due to increased patient activity. The CEO of the hospital shared that the only way they could access further funding was by evidencing this increase in activity through information, something they have had real difficulties doing so in the past, therefore leaving the hospital financially strapped. Through several discussions with the commissioner groups, the hospital senior management team were aware that commissioners get frustrated and remain skeptical with the lack of information, because then they think the hospital is trying to hide something just to take their money. In short, senior managers were invoking the importance of the mental healthcare funding context, to justify investing in HIT to display professional information handling processes. This was to motivate their framing practice in terms of lack of transparency for the commissioners, which made their funding evaluations more difficult – hence making the collecting, storing and using of information as a signal of good decision making.

5.1.3. Towards the future: Investing in HIT to improve relationships with key stakeholders

On the other hand, during the period of the CQC crisis, contrary to their primary temporal focus, a more future oriented dimension was also noted. For example, HIT was framed as having “substantial benefits to stakeholder relations”, such as improving existing relationships with CQC, GPs, research organizations and their own research staff. For instance, the CEO argued that utilizing EMR anonymized patient information would help AHP1 engage with other key research hospitals in the wider ecosystem:

“We have got a very strong research base in the [hospital] ... we use information a lot and we have been able to produce some very striking insights about death rates amongst people with schizophrenia by looking at meta data [‘data about data’]. What we would be able to do is enhance our reputation there is no doubt about it”.

More specifically, senior managers at AHP1 stressed the importance of ‘granular’ information for building better relationships with their GP stakeholders. For example, the COO commented on how information can improve relationships with GPs:

“The other thing for me is the type of information that I would have to share with stakeholders... obviously with the GPs, I would have had a good understanding of market analysis, where, what sort of market share I had, I’d be able to go and target GPs who stopped referring [patients] to my organization, and so actually the information in itself, takes you out of the organization, and starts a really intelligent conversation with the GPs”.

The above quote demonstrates the importance of GPs for hospitals. GPs increasingly have greater involvement and influence when referring patients to hospitals. Investing in HIT was framed as a way to better engage with this stakeholder group through the provision of granular level patient data instantly and remotely. This was an issue which many practitioners at AHP1 thought was crucial for reputation. The chief pharmacist commented that “in terms of reputation...GPs value clear and quick information from us at the time of discharge”. Similarly, the deputy director of finance noted that GPs tend to seek “micro [detailed] data about patients from their micro perspective”. This was very important for AHP1, given the “poor relations mental health hospitals have with GPs”, often on the bases of the “lack of professional information” and their “inability to

access patient data remotely during meetings” (Deputy Finance Director).

Relatedly, they framed HIT as a potentially attracting and retaining factor for hospital staff. The chief pharmacist emphasized that *“if people are seen to be embracing new technology, then you are seen as a forward-thinking organization and people want to work for you”*. In this way, AHP1 practitioners framed HIT investments as improving relations with key stakeholders relatively quickly, enabling them to restore their reputation by invoking other stakeholder groups. Their temporal orientation influenced their framing practices such that HIT was a means to an end; a way to convince their stakeholders of the rationality of their decision making and to impress with visual dashboards, irrespective of actual decision improvements. Through their framing practices, they were performing new justifications of HIT value for diverse aspects of reputational HIT value for different stakeholders.

5.1.4. Restoring HIT reputational value

The temporally-oriented framing practices were key at AHP1, as they helped the hospital mobilize after the critical CQC inspection and eventually to restore their reputation with the regulator. Through their framing practices, their ongoing justifications for using and investing in HIT were framing different aspects of reputational value for diverse stakeholders. For example, the short-term, reactive value seeking practices justified the urgent need for AHP1 to develop their own mobile applications to enable the monthly tracking and evaluation of CQC compliance targets, through real time digital scores. More specifically, they created a tablet-based assessment tool that all their care teams had to complete monthly were based on questions allocated to CQC outcomes and standards. All the data collected were fed into a governance dashboard that produced visual charts around a wide range of CQC outcomes. Throughout a period of rapid changes in relation to IT based mechanisms for assuring quality, they convinced the CQC that they met the standards and restored their reputation. In their inspection report in 2013, CQC praised patient care at AHP1 for being *“fully compliant in key CQC areas”* and lifted the ‘special measures’ the hospital had been facing.

5.2. AHP: Enhancing and maintaining reputation through HIT

AHP2 is a leading hospital that enjoys an international reputation for clinical excellence and innovation. Practitioners at AHP2 had an overall orientation towards the future, by using mostly long-term and proactive value seeking approaches with a view of investing in HIT to maintain and enhance their reputation. As such, the framing practices used were concerned with reimagining their future as a *“digital hospital without walls”*. Their vision, articulated in their HIT strategy document, was as follows:

“Our vision is to deliver a ‘hospital without walls’. Where world renowned, specialist care can be provided at the right time in the right location enabled by high quality, flexible HIT that provides a single source of clinical information, supports patient choice and empowerment and enables staff to do exceptional work through access to the right technology and information”.

Although AHP2 were subject to audits, inspections, assessments, and rankings from regulators, similar to AHP1, they were not bounded by their present concerns and pressure in justifying HIT investments. Therefore, their proactive temporal orientation influenced their framing practices by giving them open time horizons to appeal to the future needs of the hospital. We summarize our case findings in figure 3. Table 2 provides supporting evidence for the framing practices enhancing reputational value at AHP2.

-----Insert Figure 3-----

----- Insert Table 2 -----

5.2.1. Towards the future: Envisioning national and local strategies

AHP2 practitioners were framing key contributions that HIT investments would make to enable the hospital to respond to local and national strategic drivers. First, they were envisioning a future where they would appeal to the national strategic context of the UK by investing in HIT. For

instance, they were invoking the National Information Board's framework for action (2014), which was providing details as to how data and technology will support the delivery of the Five Year Forward View (NHS England, 2014). As such, they appealed to the technology-focused national healthcare strategy to proactively identify their present situation and envisioned a future where HIT is key to their success, as communicated in their HIT strategy:

"HIT needs to support the hospital in responding to national strategic initiatives through delivering systems and infrastructure that directly support the delivery of high quality care at every stage of the patient journey regardless of location, as well as the creation of open, transparent, accessible data that can be used intelligently to become proactive, not reactive, and drive accurate business decisions based on integrated real-time information".

Second, by reimagining the future through responding to the local strategic context, they framed investing in HIT as supporting them in maintaining and building further their worldwide recognition for care, training, and research. Relatedly, leaders at AHP2 were framing HIT investments in the present as supporting the future vision of their "digital hospital without walls". As part of their framing, they highlighted the importance of moving to a new hospital site:

"The move to [the new hospital site] is a once in a lifetime opportunity for the hospital to create a truly digital hospital that delivers exceptional patient care and staff experience"

To do so, they framed HIT investments as supporting personalized, patient centered healthcare and the provision of integrated systems that would provide fast, reliable information and data for both management and research purposes. Additionally, they highlighted the importance of how HIT would support them in providing safe and high-quality care, by enabling them to capture, monitor and audit clinical information electronically. Overall, their proactive, long term temporal orientation influenced their framing practices by helping in justifying and identifying long term benefits from HIT investments.

5.2.2. Towards the future: Investing in HIT to create strong business partnerships and relationships

As part of their framing practices, AHP2 justified HIT investments as the way to create strong business partnerships and relationships with their key stakeholders. The technology director explained:

"So one of the golden threads in realizing the HIT strategy is we can't do it on our own, we don't have the knowledge, the expertise, [...] what we have is our reputation for clinical excellence and innovation, so one of the things that I'm keen to build is that we bring the two parties together and we form strategic partnerships to do the clever stuff".

Apart from helping them engage in strategic partnerships, AHP2 practitioners enrolled diverse stakeholders whom HIT would allow them to connect with. One of these groups is the funding commissioners, as explained by the technology director:

"Technology may help us with commissioners too, because we'll have more granular information about all of our interventions, how much they cost and how long they take, so the data that we can extract from our technical solutions become a selling mechanism in themselves".

In addition to commissioners, another key stakeholder group enrolled in their framing practices were other referring hospitals. They framed HIT as helping them improve their waiting lists for patients and delivery care, which they envisioned would influence hospital referrers. In the words of the technology director:

"One of the expectations we have is that technology will help us to work the usual faster, smarter, better. If we don't have waitlists, then we become an attractive place for hospital referrers to send patients. One of the stressful things for lots of patients is waiting to get seen, so if you don't have a wait to get seen then not only is that better patient experience, but also the delivery of care has got to be improved. So that may influence referrers' behaviors".

5.2.3. Towards the future: Investing in HIT to improve clinical research and patient recruitment

The third framing practice they used in the ongoing process of justifying HIT investments was framing HIT as improving their clinical research, and hence as a way of maintaining and enhancing their international reputation. The HIT and technology director highlighted the importance of data as “the most important asset” after patients and staff:

“The progression towards digital data now means it is possible to record, access and analyze data in much larger amounts. The acquisition, curation, management, analysis and exploration of data drive the medical research industry and is increasingly seen as the most important asset after patients and staff”.

Not only did they envision HIT as improving clinical research, but also as improving their ability to recruit patients for scientific trials. A consultant physician at AHP2 explained that sharing patient anonymized data through EMRs could help them “obtain target patient sample sizes for scientific trials”. The consultant physician emphasized the importance of recruiting patients for such scientific trials:

“An essential part of our research work is commercial trials and the ability to recruit appropriate patients speedily and rapidly and then follow them up and use the various systems that they require us to do so, is also very important as well... leveraging IT is a brilliant way of doing that”.

Overall, this framing strategy helped AHP2 frame HIT as fully supporting the hospital in its research and development vision, by creating a robust environment for research to enable clinical staff to compete in the national and international research market. This framing practice justified HIT investments as a way of providing accessible, automated performance dashboards for performance monitoring; forecasting and modelling of data and the production of real-time reports and dashboards.

5.2.4. Maintaining HIT reputational value

However, although AHP2 envisioned enhancing their reputation through long-term, proactive value seeking framing practices explored above, they did not draw on stable conceptions of value, but rather framed HIT reputational value as mutable, something they had to continuously engage with to secure, not a one-off outcome of HIT investments. This involves justifying actions such as the “maintenance” work of value over time, reputation vulnerability and HIT as threat to reputation, all of which emphasized the mutable nature of value and show the diverse generative opportunities for performing reputational value. AHP2 practitioners were framing HIT as a threat to their reputation, where HIT implementation could disrupt established healthcare practices, highlighting the mutable nature of HIT value. A business change manager at AHP2 commented on this:

“... when an organization has introduced technology based projects they typically are not normally going to work right first time [...] there is a whole variety of issues that falls out of that project that can impact straightaway hospital reputation [...] in some of my past activity I have seen some major implementation of IT based projects and really the reputation of the hospital has fallen in most instances almost straightaway on that”.

At the heart of these issues, according to the clinical lead of intensive care at AHP2, is the way HIT can come in conflict with the already established healthcare care practices. For example:

“Any IT implementation may crystallize problems [...] what you are not taking into account are the unconscious, not recognized, mechanisms that have been put in place by people to support actions, and when you put the technology in place [...] any problem becomes the fault of the technology, even if it has nothing to do with it”.

Relatedly, another important aspect of justifying HIT investment was reputational value maintenance, where practitioners at AHP2 emphasized that maintaining their international reputation was a continuous process rather than a static one. As a transplant consultant explained:

“Our reputation is enormously important and in order to maintain that reputation we need to keep delivering every single day of every single week or every single month of the year, you cannot rest on your laurels because you will be moving behind”.

Finally, AHP2 practitioners recognized that even the most favorable and established reputations, including theirs, cannot be taken for granted. In justifying HIT investments, the service improvement program director noted how reputational value is vulnerable:

“... [reputation represents] both sides of the same coin in my view, so good reputation, bad reputation have different consequences, but you cannot consider one without considering the other, so they’re just two sides of the same coin... the time and effort that goes into building and establishing a good reputation and the ease at which that can be flipped [...] and then the time and effort that goes into trying to recover it [...] for me it’s two sides of the same coin”.

Through the framing practice of maintaining HIT reputational value, AHP2 practitioners were conceptualizing the contingent status of HIT reputational value as both generative (forming as a prerequisite for further benefits to come, such as enhancing their reputation with different stakeholders), but also as vulnerable (forming as a hindering factor bearing negative consequences for hospitals).

In summary, the framing practice of maintaining HIT reputational value continuously points to the importance of continually engaging in framing practices for HIT value, as a consequence of ongoing evaluation, where hospitals need to engage in a continued investment of effort to sustain favorable reputational value from their stakeholders. In other words, even though HIT reputational value may appear lasting and enduring at one point in time, it cannot be taken for granted, as it can also be depleted temporally; stakeholders can change their perspective quite significantly, based on the threat HIT poses. Hence, the process of justifying HIT investments may be conceptualized as an ongoing evaluating process that relevant hospital stakeholders are constantly framing HIT value.

5.3. A process model of framing practices and reputational value in healthcare

As shown on figures 2 and 3, we identified framing practices that senior managers and other practitioners used to perform justifications of HIT investments, generating potential for multiple facets of HIT reputational value for diverse stakeholders (such as restoring, enhancing, and maintaining reputation). We synthesize our findings across the two cases into a general process model (shown in Figure 4 below), which facilitates cross comparison of the temporally oriented framing practices performed at our case hospitals.

-----Insert Figure 4-----

First, we find that practitioners used temporally orientated framing practices to justify HIT investments for overcoming issues of the past, addressing present issues, and finally, projecting towards the future. Our model highlights that the time horizon (short or long term) and value seeking approach (reactive or proactive) matter for justifying HIT investments. For example, in the case of AHP1, the short-term, reactive temporal orientation of their “crafting urgency” framing practice was key for helping the hospital mobilize after the very critical CQC inspection and in devising a framework for quality improvement using different HIT. At the same time, they were also using framing practices to address present issues. For example, the short-term, reactive temporal orientation of the tactical framing of “displaying professional practices” justified the urgent need for AHP1 to develop their own mobile applications to enable the monthly tracking and evaluation of CQC compliance targets, through real time digital scores. In addition, they justified investing in HIT as providing EMR information that can act as a “weapon for contract negotiation” with commissioner groups and make them seem more “professional than rooting around for the odd note”. As we show in section 5.1.4, they eventually convinced CQC they met the regulatory standards and eventually restored their reputation.

However, despite crafting urgency and addressing present issues, practitioners at AHP1 also used framing practices oriented towards the future. Their framing practice of “improving relationships with key stakeholders” envisioned reputational value for other stakeholders beyond CQC, such as improving the negotiating position with commissioners, GPs and by potentially attracting hospital staff. This suggests that temporally orientated framing practices can be overlapping with different time horizons and value seeking approaches simultaneously. Even with a major organizational

failing and a sense of urgency to act and overcome the past and address present issues, temporally oriented framing practices can also stretch towards the future.

Second, in contrast to AHP1, practitioners at AHP2 were oriented towards the future and mostly used long-term horizons and a proactive value seeking approach. For example, the framing practice of “envisioning national and local strategies” was centered on their vision of delivering a “digital hospital without walls” and was used to justify HIT investments as an opportunity for maintaining, enhancing and reproducing their reputation in the future. Also, their framing practice of “creating strong business partnerships” with commissioners, GPs and other referring hospitals, helped them in justifying HIT investments as providing reputational value for the hospital. This framing practice is similar to AHP1’s practice of “improving relationships”, where practitioners at both hospitals used a long-term time horizon and a proactive value seeking approach. Similarly, AHP2’s framing practice of “improving clinical research and patient recruitment” allowed them to justify HIT investments as providing reputational value from improved outreach to patients, and to clinical staff from exploiting data for medical purposes. As the model demonstrates, in both cases, practitioners were performing framing practices that appealed to different stakeholders, unpacking multiple facets of reputational value, rather than a singular notion of reputation.

Third, our model emphasizes the mutable nature of value, which we summarize as HIT value dynamics, by showing the diverse generative opportunities for reputational value. For instance, in the case of AHP2, practitioners used the framing practice of “maintaining HIT reputational value”, recognizing that HIT can threaten reputation. Taken together, our findings show the process and practices through which practitioners are justifying HIT investments in an ongoing manner. Our model highlights that the framing of value is an ongoing process, and reputational value mutable. Further, we unpack the multiple facets and possibilities for performing HIT reputational value.

6. Discussion

In this paper, we have addressed the question of how healthcare practitioners enacted framing practices for justifying HIT value, with a focus on reputational value. Through a cross-comparative case study, our study elaborates theory on the role of temporally oriented framing practices which perform multiple justifications of HIT reputational value, leading to different possibilities by which reputation is restored, enhanced or maintained. Our analysis suggests a re-orientation of value, from being a singular, one-off outcome, to a process understanding of how value (in our case reputational value) may be mutable. We synthesize our empirical findings in a process model of framing practices and reputational value which contributes an understanding of the process of justifying HIT investments for multiple facets of reputational value. This process is dynamic and ongoing. Such a view highlights our understanding of value as being enacted through framing practices which invokes multiple stakeholders. Below, we describe how our findings contribute to the literature on HIT investments. Further, we develop the concept of value mutability as an important elaboration of enacting HIT value, with specific reference to reputational value.

6.1. Implications for HIT value literature

Our study suggests a number of implications for the business value of IT (Kohli & Grover, 2008; Melville et al., 2004) and for HIT (Devaraj & Kohli, 2003). Previous work has conceptualized HIT value as either the intrinsic property of IT, or the subjective preferences of the evaluative audiences shaping IT value. On the other hand, scholars argue that pre-existing categories exercise disciplinary effects on organizations, which leaves organizational actors and IT strategists with little room to maneuver (Meyer & Rowan, 1977). As Kornberger (2017, p.1766) argues, we encounter a not unusual impasse: an essentialist approach to technology which clashes with an “over-structuralized, sociological account of the conditions of the (im-) possibility of agency”. First, our performative framing perspective contributes an alternative view bringing into focus agency, while keeping an eye on structural constraints. This is a “bottom-up” approach that shows practitioners can and do enact new value understandings through temporally oriented framing practices, rather than acting on already imposed categorizations by intermediaries that are frame-making. Related to our “bottom-up” view, we also contribute by showing the mutability of IT value,

that is, HIT reputational value as a dynamic, ongoing process, continually unfolding and constituted by ongoing reconfiguration. Previous work has emphasized IT value in terms of new organizational processes that produce specific, relatively stable value outcomes, such as financial (Menachemi, Burkhardt, Shewchuk, Burke, & Brooks, 2006) or operational value (DesRoches et al., 2008). These value outcomes are usually examined in isolation (see Schryen, 2013 for a recent review). Our study challenges this assumption by viewing the justifying of HIT investments and performing of value as an ongoing accomplishment, defined by maintenance work and the possibility of having to either restore, maintain or enhance reputation.

Second, our findings have implications for the recent stream of research that examines value as articulated in multiple dimensions (Barrett et al., 2016; Tempini 2017). Our process model connects with previous findings on the creation and making of value in practice, contingent value dynamics (Tempini, 2017) and valuation processes as shaped by encompassing regimes of worth that create multiple kinds of value (Barrett et al., 2016). However, it differs in providing insights into the performative mechanisms through which justifications of value are performed and “brought into being”, as well as by unpacking multiple facets of the same reputational value. We confirm Tempini’s (2017) nonlinear, contingent value dynamics that warn against eventual interpretations of value creation as a linear accretion trajectory, but at the same time, extend these findings by showing the process and mechanisms through which these dynamics are performed. For instance, our performative framing model shows that temporal orientation is an important aspect of the IT investment justifying process, which influences framing practices in the enactment of HIT value. As such, we show how these contingent value dynamics may play out, and the mutable, tenuous forms of HIT value that can lead to both favorable (restoring, enhancing) and unfavorable (threatening reputation) value at different points in time.

Moreover, we build on Barrett et al., (2016) who examine how the use of the platform and stakeholder participation led to different values being enacted, such as reputational, financial, service, and epistemic. We extend this line of research by problematizing further the nature of the phenomenon of value, by showing the mechanisms through which reputational value can be enacted in different ways. Framing practices may lead to favorable reputational value being enacted for commissioners, regulators and hospital staff, yet negative assessment of new clinical practices, such as from unplanned disruptions during IT implementation, can enact negative reputational value from the perspective of patients. This insight, coupled with our findings of the ongoing need for maintaining reputational value, suggest organizations need to engage in continuous efforts for enacting aspects of the same value differently for different stakeholders. At the same time however, our findings emphasize that such value is neither certain, nor a final outcome, but rather implicated in a continuous process of justifying and framing HIT.

Third, and relatedly, we contribute by responding to the call made by Salge et al., (2015) for exploring how HIT can enhance organizational reputation among other social goals. Although previous research illustrates that organizations following IT fashions tend to have better reputation regardless of performance improvement (Wang, 2010), it falls short of demonstrating the process through which this happens. By adopting a “bottom-up” view of how practitioners enacted framing practices at the initial resource allocation stage, our model conceptualizes HIT reputational value benefits for different stakeholders, addressing the missing interrelations of value between healthcare stakeholders. At the same time, we suggest that framing value is distributed across different intermediary stakeholders. This relates to the valuation literature (cf. Kornberger, 2017), which argues that valuation practices involved a series of different intermediary actors, such as critics, credit scoring agencies or investment bankers, who shape preferences and act as guideposts for others’ deliberations and decisions. In other words, these are “frame-makers” (Beunza & Garud, 2007) that define conventions and structure the understanding of value. In our cases, the healthcare practitioners were invoking multiple other stakeholders, such as commissioners, GPs, patients and regulators in their framing practices for reputational value through HIT. As such, our model points to the distributed agency of value (Kornberger, 2017).

6.2. Implications for practice

Our study also has practical implications. First, we emphasize the importance of temporally orientated framing practices in understanding the process of justifying HIT investments and performing reputational value. Practitioners can be mindful of how short/long term time horizons and the reactive/proactive value seeking approaches they use can influence their justifying of HIT investments and eventually enact different value possibilities. In addition, as our cross-case comparison suggests, temporally orientated framing practices can be overlapping with different time horizons and value seeking approaches simultaneously. Even though our two hospital cases were facing contrasting pressures, practitioners used both a reactive and proactive value seeking approach where necessary. For instance, a short-term/reactive temporal orientation might be useful for hospital staff to take actions that produce tangible results and overcome HIT disruptions to practices, whereas using only long-term/proactive framing practices might be too visionary so that hospital staff may get discouraged or lost in the day-to-day struggles with HIT (in relation to HIT risks). At the same time, our insights around value mutability suggest practitioners can transition from one set of temporally oriented practices to another, as external situations change.

Second, the multiple stakeholders our case organizations invoked in their framing practices suggest that hospital managers and IT professionals should focus not only on stakeholders they believe to be the most strategic, such as regulators or funding commissioners, but also to a wider range of stakeholders, including patients, GPs and their own hospital staff. Beyond healthcare, managers need to be mindful of reputation multiplicity (Boutinot et al., 2015; Carter & Deephouse, 1999; Mishina, Block, & Mannor, 2012), that is, having reputation in various domains. For example, having a favorable reputation with regulators might not necessarily ensure a favorable reputation with clinical staff or commissioners. Therefore, practitioners might be framing HIT investments broadly, to incorporate different stakeholders. We suggest that managers might strategically appeal to a plurality of stakeholders (e.g. clinical staff, regulators, commissioners, GPs, other referring hospitals).

Third, our insights around value mutability and the ongoing process of justifying HIT investments can help practitioners better understand the dynamic nature of mutable reputational value. Our findings suggest that even though it is widely recognized that reputation takes significant time and effort to develop (Fombrun, 1996), forming based on past actions (Balmer, 2003; Barney, 1991) and becoming an enduring and “sticky” resource (Ang & Wight, 2009; Fombrun & Van Riel, 2004; Schultz et al., 2001), reputational value is neither certain, nor a one-off outcome, as illustrated by our process model.

7. Conclusion

In this paper, we studied how practitioners justified HIT investment at two UK hospitals, with a focus on reputational value. We have developed a process model of framing practices and reputational value, which provides an understanding of the dynamic way in which reputational value is performed through the ongoing process of justifying HIT investments, which is influenced by the temporal orientation of individuals’ framing practices. Further, our study provides an enhanced appreciation of value mutability; value as not a finalized outcome, but rather, mutable in its enactment through framing practices that are temporally oriented.

The limitations of this study offer opportunities for future research in this area. Although focusing on reputational value allowed us to elaborate theory and provide a more granular understanding of the dynamics and mechanisms in the process of justifying HIT investments, future research can extend our findings to other dimensions of value reported in the literature, such as epistemic, platform, scientific and service values. For example, are aspects of the aforementioned values enacted in the same way as reputational value? Are they as mutable as reputational value? These questions can help shed more light on the phenomenon of HIT value.

Relatedly, although our study examined the orientation of framing practices towards time, future studies can study the performativity of value over time, in relation to value fragility. As argued by other scholars, performativity is never a settled state of affairs, but must instead be considered as an ongoing journey (Garud, Gehman and Tharchen, 2017). Even if a constitutive order of value is

reached, it is “fragile” (Callon, 2010), as the unravelling of felicitous conditions underlying such constitution will de-constitute the original order. Our findings on the framing practice of “maintaining HIT reputational value” allow us to speculate on the fragility and tenuous nature of reputational value. For example, even though HIT reputational value may appear lasting and enduring at one point in time, it cannot be taken for granted, as it can also be depleted temporally; stakeholders can change their perspective quite significantly, based on the threats HIT poses. Therefore, while we did not observe value fragility in our cases, we anticipate this is a possible and important topic that future studies can build on and shed light on the process through which reputational value, and other types of value identified in the literature, are performed on an ongoing basis.

Second, scholars can pay more attention to the multiple ways different materialities, other than HIT, may perform value differently, by enabling and constraining framing practices. This is an important area for future work given the increasingly established view that material artifacts and materiality more broadly are fundamental components of practices (Bechky, 2003; Carlile, 2002; Feldman & Orlikowski, 2011; Leonardi & Barley, 2008), or constitutive of phenomena (Orlikowski & Scott, 2008). Relatedly, future studies can pay attention to distributed agency of valuation practices by paying closer attention to non-human actor agency in defining value (Kornberger, 2017). Experts, critics, but also non-human agents, such as algorithms, are involved in practices of valuation. Analytically, this focus on distributed agency suggests understanding valuation practices not as static information on, and assessment of objects, but as a dynamic, ongoing process flowing through networks of people, intermediaries, and non-human actors.

Third, our findings are limited to the extent that we focused on the hospital organizations’ perspective and framing practices. Future research can further enrich data collection at the field level, enabling a more holistic understanding of the ongoing process of justifying HIT investments for different stakeholders. For example, research could more closely observe and conduct interviews with evaluating stakeholders, such as inspection teams of regulators, healthcare commissioners, media journalists, patient advocate group leaders, patients, and GPs. Nevertheless, despite these limitations, we believe our theoretical insights on reputational value and mutability can be analytically generalizable to other relevant contexts beyond health care.

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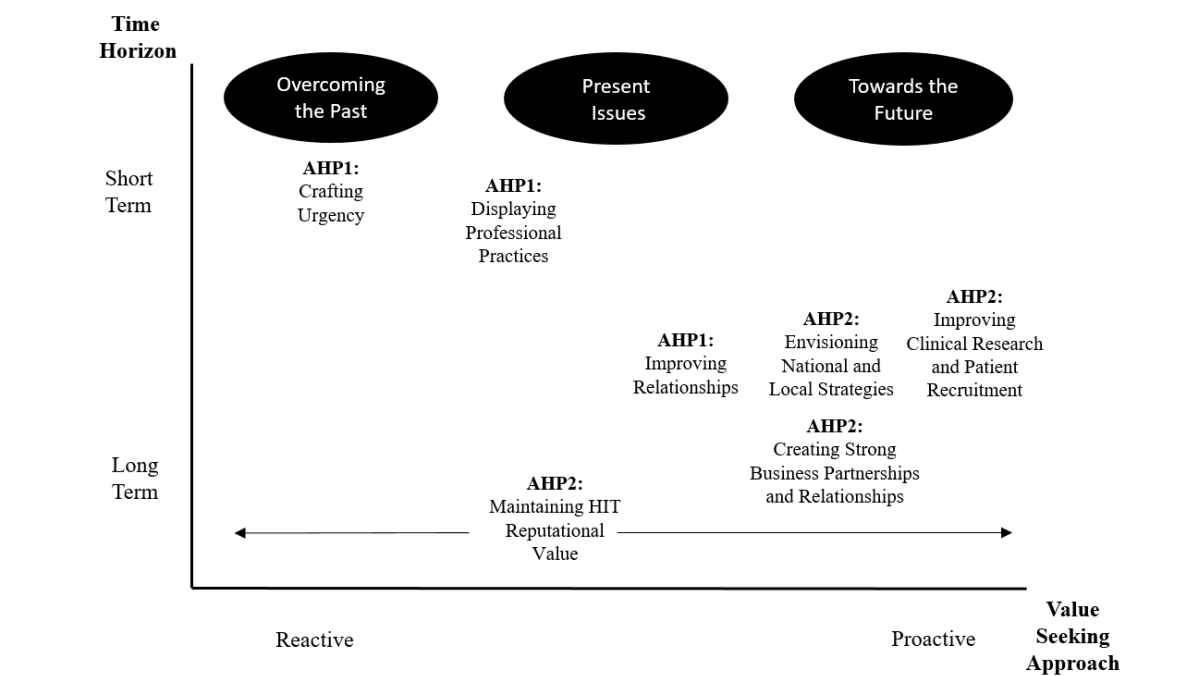


Fig. 1. Categorizing Temporal Framing Practices across Case Studies

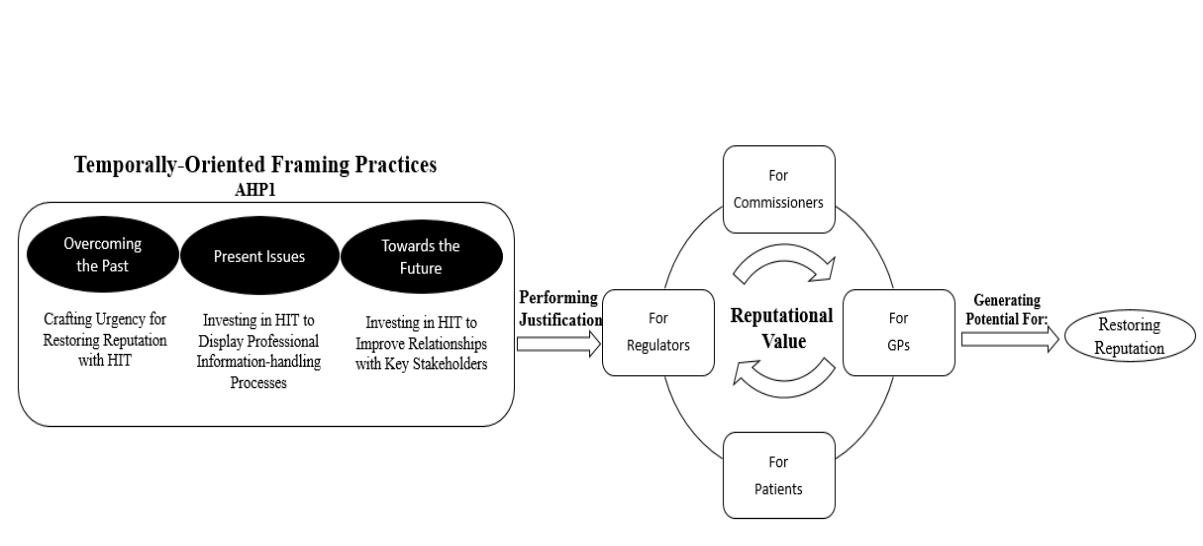


Fig. 2. Summary of Findings at AHP1

Table 1
 Temporally-oriented Framing Practices for Restoring Reputational Value at AHP1

Aggregate Dimension	Temporal Orientation	Framing Practices	Justifying Actions	Exemplary Quotes
Overcoming the Past (Practices anchored in solving past problems)	Short-term horizon Reactive Value seeking approach	Crafting urgency for restoring reputation with HIT	Investing in HIT urgently to collect, store and visualize data to CQC in an accessible manner	<p><i>“The framework focuses around a self-assessment approach undertaken by clinical team through HIT. This assessment measures local compliance against a wide range of standards derived from the CQC” (AHP1 Annual Strategy Document)</i></p> <p><i>“We will develop an internal quality assurance framework that underpins improvements in quality, safety and effectiveness at the point of care delivery through HIT” (AHP1 Annual Strategy Document)</i></p>
			Investing in HIT will help us devise a framework of action	<p><i>“CQC quite rightly picked us up on it and so we said right okay we’ll put in an improvement plan through HIT and then we will monitor it” (Chief Pharmacist)</i></p>
Present Issues (Tactical practices anchored in short-term horizons)	Short-term horizon Reactive Value seeking approach	Investing in HIT to display professional information handling processes	Using EMR makes us seem more professional than rooting around for the odd note with our stakeholders	<p><i>“If regulators know your record keeping systems are robust... then they will have more confidence in what you are doing” (Consultant Physician)</i></p> <p><i>“I think at a sort of very basic level, if an organization can’t in 24 hours produce reasonable information in response to a public Freedom of Information request, a local health organization ringing up and asking to know stuff and regulators, they are not very good. We have had immense difficulties with our purchases of one sort or another when we can’t provide them with information they believe we ought to be collecting and having electronic form” (Medical Director)</i></p>
			Using apps to collect information	<p><i>“CQC need assurance that we are being mindful of any aspect of assessment that may impact upon</i></p>

			helps us convince CQC of our compliance with standards	<i>the patients' outcome" (Nurse Matron)</i>
			Using EMR information as weapon for contract negotiation with Commissioning Groups by monitoring safety of services	<p><i>"We have a block contract which means that we don't automatically get paid if we see more people... so we have to negotiate [funding] at the end of each year [with commissioners]. So being clear about what that increase is and which teams have experienced what increase and what the impact of that was, so other bits of information like the acuity of the patients who are being cared for, that's all vital to the case we make. As well as understanding what's going on in the service" (CEO)</i></p> <p><i>"Technology helps us with commissioners because we have more granular information about all of our interventions, how much they cost and how long they take, so... the data that we can extract from our technical solutions become a selling mechanism in themselves"(Chief Operating Officer)</i></p>
Toward the Future (Strategic practices anchored in long-term horizons)	Long-term horizon Proactive Value Seeking Approach	Investing in HIT to improve relationships with key stakeholders	HIT can improve stakeholder relationships by providing detailed information	<i>"Good IT systems have substantial benefits to the stakeholder relations... an organization that has immediate access to its data is one that's impressive to work with" (Clinical Psychologist)</i>
			HIT can help us by attracting and retaining hospital staff	<i>"HIT allows you to attract staff more easily at all levels... it is easier to recruit people" (Consultant Anesthetist)</i>

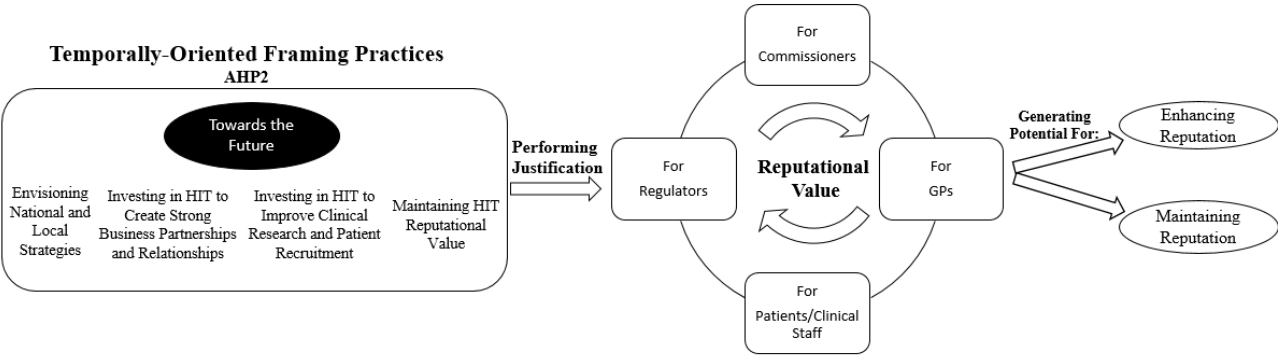


Fig. 3. Summary of Findings at AHP2

Table 2
 Temporally-oriented Framing practices for Enhancing Reputational Value at AHP2

Aggregate Dimension	Temporal Orientation	Framing Practices	Justifying Actions	Exemplary Quotes
Toward the Future (Strategic practices anchored in long-term horizons)	Long-term horizon Proactive Value Seeking Approach	Envisioning national and local strategies	Reimagining the future by responding to national strategic context	<i>“HIT needs to support the hospital in responding to national strategic initiatives, through delivering systems and infrastructure that directly support the delivery of high quality care at every stage of the patient journey regardless of location (HIT strategy document)</i>
			Reimagining the future by responding to local strategic context	<i>“HIT needs to support the hospital in responding to local strategic initiatives through enabling us to maintain and build further worldwide recognition for our care, training and research” (HIT Strategy Document)</i>
			HIT can support and future proof our hospital	<i>“From a HIT perspective, the challenge is one of creating a strategic HIT service that can support and future proof the hospital whilst bringing business-as-usual practices into an age of rapidly advancing technological change” (HIT Strategy Document)</i>

<p>Toward the Future (Strategic practices anchored in long-term horizons)</p>	<p>Long-term horizon Proactive Value Seeking Approach</p>	<p>Investing in HIT to create strong business partnerships and relationships</p>	<p>Investing in HIT to create strong business partnerships and relationships</p> <ul style="list-style-type: none"> • With commissioners • With other referring hospital 	<p><i>It is recommended that the hospital invest in HIT to create a strong business partnership that will enable us to meet and exceed both local and national expectations and implement a truly digital hospital” (HIT Strategy Document).</i></p> <p><i>“By using HIT we can negotiate with commissioners in terms of the levels of activity that we do” (Medical Director)</i></p> <p><i>“We can use HIT as an influencer with referrers. So by way of example, if we can manage our waiting lists more efficiently, more effectively using E-Hospital, if I’m a referring district general hospital I may look around and say, so who can do that radiology test for me, I may choose to send my patient to our hospital because we don’t have a waiting list, because its managing its patient flows so much better with the use of technology as well” (HIT & Technology Director)</i></p>
<p>Toward the Future (Strategic practices anchored in long-term horizons)</p>	<p>Long-term horizon Proactive Value Seeking Approach</p>	<p>Investing in HIT can help us improve clinical research and patient recruitment</p>	<p>Investing in HIT to improve clinical research</p> <p>Investing in HIT to improve ability to recruit patients for scientific trials</p>	<p><i>“I think the use of an EMR facilitates recruitment to clinical trials that will be hugely important... being able to ask a database who’s got this condition, who’s got this bug and who’s not is hugely important for reputation... which would mean a lot of money for the hospital” (Consultant Physician)</i></p> <p><i>“An essential part of our research work is commercial trials and the ability to recruit appropriate patients speedily and rapidly and then follow them up and use the various systems that they require us to do so, is also very important as well... leveraging IT is a brilliant way of doing that” (Medical Director).</i></p>

<p>Toward the Future (Strategic practices anchored in long-term horizons)</p>	<p>Long-term horizon Reactive Value Seeking Approach</p>	<p>Maintaining HIT reputational value</p>	<p>Threat-to-reputation: HIT can disrupt care pathways when implemented</p>	<p><i>“The problem with HIT is that they will, depending on implementation, affect some of your pathways, and you try to decrease that, [but] it will still disrupt some of the pathways. So, you need to be careful for that [...] in fact, it can disrupt pathways so much that [...] there can be an increase in death” (Medical Director)</i></p>
			<p>Maintaining reputation on an ongoing basis</p>	<p><i>“We need to maintain our reputation in research circles as well, an important part of our research work, well an essential part of our research work really is commercial trials and the ability to recruit appropriate patients to them speedily and rapidly and then follow them up and use the various systems that they require us to do so” (Nurse Lead – eHospital Coordinator)</i></p>
			<p>Our reputation is vulnerable</p>	<p><i>“We have a lot of transplant patients around the country because we are a centre... so we are using more technology [like skype] for their follow up assessments... they don’t want to travel all the way here... but we have to be careful because sometimes you can miss things on video calls with patients that you would catch when seeing them [face to face]... we have to get it right and make sure the patient gets the best care... otherwise [it can damage] our reputation and harm the patient” (Senior Transplant Nurse Lead)</i></p>

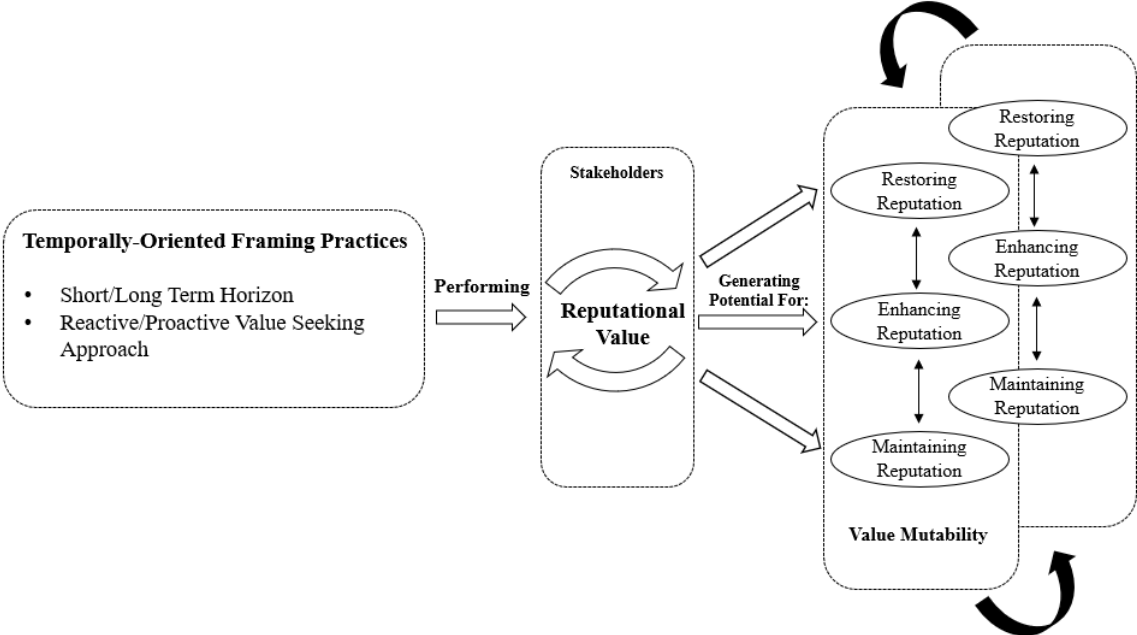


Fig. 4. A Process Model of Framing Practices and Reputational Value in Justifying Health IT Investments